

AVIATION WEEK

FEB. 9, 1948

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The Airfreight War

While CAB still totters uncertainly down a tortuous road to a decision on the status of noncertificated cargo carriers, it has fallen even further behind events as these have been accepted new Government recognition in a highly important quarter with Secretary of Air Service, Don's decision to use two uncertificated operators to move dependents of Army personnel.

This action is likely to portend for more important developments. It gives these carriers a measure of prestige they have not had before—considering that the two lines involved got their part of the business in an open fight with the certificated line represented by Air Transport Association. Yet with that prestige goes a responsibility that is shared by all the noncertificated lines.

They must clean house—and fast—by discontinuing practices which, in addition to chipping away the foundation of friendship they recently have won, are frowned upon by the more far-sighted operators.

Indiscriminate movement, flying in violation of safety regulations, marginal passenger-carrying "contract" operations, if continued, quickly could wreck a future that boasts recent bright promises of increased Government business.

ATA ON WARPATH—Posnett slaps precedents on the part of some minor elements among the noncertificated carriers eventually would alienate all the friends in Congress and the press that the carriers have made in recent months. But the situation has been ascertained as to the fact that ATA has launched an all-out attack against its uncertificated competitors.

At their annual meeting in December, ATA members unanimously adopted a motion instructing its staff to push a bill to provide for more stringent Federal regulations on contract carriers.

In addition to the issue they made of the transportation of dependents, the certificated airlines made a significant move at the recent CAB and argument on competing airfreight carriers between Alaska and the U.S. from the Economic Regulation.

Besides the proposed Alaskan exemption, the certificated lines challenged the Board's authority to promulgate Section 292.1 (the noncertificated exemption) and Section 292.5 (the domestic airfreight exemption), and the proposed exemption of freight forwarders.

The single strongest interest interest is that 292.1 has been in effect since before the war, and 292.5 since last summer. Still, the attacks on their legality were the heaviest of all.

CAUSE FOR COMPLAINT—ATA has plenty of cause to gripe about lack of enforcement of the noncertificated regulation (Section 292.1), especially on the

Pacific Northwest Alaska and the New York Puerto Rico runs. Bad accidents, pilot neglect and frequent violations of both economic and safety regulations by noncertificated lines in those areas have reflected on the scheduled carriers.

Criticism has policies and cheap and high-speed maintenance also have hurt the other passenger carrying noncertificated and contract lines that are trying to obey the rules.

Pointing up the fact that correction of these conditions is a job for the noncertificated lines themselves is the statement in CAB's endorsement and litigation division that it does not have the personnel to prosecute violations of the noncertificated exemption. After the Berke Air Transport crash in Florida last fall, CAB said it did not have enough personnel to police the noncertificated carriers.

Another indication of the result of poor operations and judgment on the New York Puerto Rico run has just come to light. Pan American Airways filed a tariff with CAB increasing fares from New York to San Juan by about 15 percent. The tariff advisory board of the postal government of Puerto Rico sent the Board a point which need not pass. "Establishment by PAA of higher fares will undoubtedly result in diverting more passengers from the certificated carriers to the noncertificated lines whose history of performance is not one to inspire confidence on the part of the traveling public."

A year or so ago the Puerto Rican government was vigorously backing noncertificated and contract carriers.

GOOD WITH THE BAD—In the face of such factual evidence of how support can be splintered by opposition, even from some of the most ardent boosters, it is little wonder that the noncertificated carriers are giving deep thought to the attacks in their ranks.

There are some noncertificated carriers with outstanding records—Seaboard & Western, Pacific Overseas, Transcon, Flying Tigers—the last three of which have performed extensive contract work for the Government with perfect safety records.

If the noncertificated lines can set their own house in order they should be in a position to benefit from heavier Government involvement in the future. They have a deep conviction of good will in the Army and Air Force whose officials quickly point out the numerous rules of a widespread cargo network in case of an emergency.

If the noncertificated lines could turn their full organizations over to the Government service on better terms than could the scheduled airlines, with their certified ownership and recordkeeping. But if public opinion were aroused over the health of the free, the solid achievements of the men, also would suffer. And it is questionable how much business the Government would dare give the noncertificated operators.



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NEWS DIGEST

DOMESTIC

National Airlines pilots struck early last week, further crippling operations which had already been affected by a three-week outbreak of clerks and mechanics. David L. Bellanca, president of the Air Line Pilots Association, said the action was taken after two "almost unanimous strike votes" and followed two years of poor performance and relations.

John R. Allison was confirmed as Assistant Secretary of Commerce for Air by the Senate, having served in the office since his Presidential appointment during a Congressional recess.

Vice Admiral John Duff Price, recently named Deputy Chief of Naval Operations (Air), received appointments on the National Advisory Committee for Aeronautics and the Research and Development Board.

Civil Aeronautics Board confirmed earlier reports that had linkage from a transfer operation between No. 3 and No. 4 tank, entering the cabin later in service of the United Airlines Douglas DC-4 had probably caused the fire that resulted in the Beech Canyon, Utah, disaster.

Col. Virginia Evans Clark, former chief aeronautical engineer of the Army in 1915, died at Santa Monica, Calif., at the age of 61. Clark created the famous series of aerobics lessons by radio and designed numerous aircraft. One of the founders of Consolidated Vultee Aircraft Corp., he most recently was an expert on Dornier aircraft structure, serving as consultant to Hughes Aircraft Corp.

FINANCIAL

Link Aviation, Inc., Birmingham, N. Y., has paid \$427,402.19 in back taxes to the Federal Government which it has been demanded a lien against the firm.

FOREIGN

Canadian war ace Gordon R. McGeorge of Montreal has been appointed president of Trans Canada Air Lines, succeeding H. J. Symington.

Bombardier has been completed a full year of service without a single passenger fatality Jan. 4, 1948. Using American equipment, the Bombarier nation fly an annual passenger mileage second only to the U. S. in the entire world.

Refugees granted entry to the United States government for the use of Royal Air Force fields at Curtiss Beato near Tripoli, Libya and Logo on Malia. The agreement was reached at U. S. request but the fields will remain under R.A.F. control.



When the World's Largest Bomber "Sets Down"...

Consolidated Vultee Aircraft Corporation built the glider plane. It has a range of 35,000 miles. The B-24 Liberator, built by Vultee Aircraft Corporation, is a four-engine, high-speed bomber. It has a maximum speed of over 300 m.p.h. All four engines are in the wings.

NICKEL ALLOY STEEL LANDING GEAR PARTS RESIST IMPACTS THAT MAY REACH 1,000,000 FOOT POUNDS

The B-36 weighs 139 tons.

When landing, shock loads on parts that take the impact may soar to 1,000,000 foot pounds.

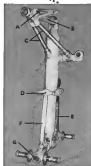
To meet these terrific stresses, main structural parts of landing gear units are made from Type 4340 Nickel-chromium-molybdenum steel.

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Illustrated: Paramount Tool Company, producer of landing gear assemblies for the B-36, and Type 4340 Nickel-chromium-molybdenum steel for the tail landing gear parts. A—Shock absorber, B—Wheel fairlead, C—Shock absorber, D—Shock absorber, E—Shock absorber, F—Shock absorber, G—Shock absorber.

THE INTERNATIONAL NICKEL COMPANY, INC. 87 WALL STREET
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AVIATION WEEK, February 9, 1948

NATS and ATC Are Merged Into Single Military Transport Service

Maj. Gen. Kuter slated to head new command with Rear Admiral Whitney as deputy; details hinge on route survey.

By ROBERT HOTZ

Merge of the Air Force Air Transport Command and the Naval Air Transport Service into the Military Air Transport Service has been ordered by Secretary of Defense James V. Forrestal, effective Mar. 1.

Maj. Gen. Laurence Sherman Kuter, now U. S. delegate to ICAGO and formerly commander of ATC's Atlantic division, was named to head NATS with Rear Admiral John Perry Whitney, Navy General Board member and former chief of staff and director of NATS who will be Kuter's deputy in command. Rear Admiral John Whitney, Jr., commander of NATS was originally offered the top MATS post but declined.

► **Detailed Plan**—Forrestal's initial merger order is only the beginning of actual consolidation of the two transport services, long a target of Congressional economic advocates. Significant details of the merger will be worked out by the MATS commander and his deputy and will be reported to the Secretaries of the Air and Navy. Present plan is for Kuter and Whitney to make a survey of all ATC and NATS assets and then draw up a detailed plan for consolidating all scheduled transport operations into one trunk system. This plan will be submitted for approval to Air Force Secretary Stuart Symington and Navy Secretary John Sullivan before final recommendations by Forrestal.

MATS will be administered through the Air Force. Earlier consideration had been given to putting MATS under the joint chiefs of staff. The merged transport service will be charged with providing scheduled air transport for the Army, Navy and Air Force.

► **Comprehensive Made-Shoulder's** new order is a compromise between the ATC desire to absorb all military air transport and the Navy's stand that NATS should be preserved as an independent unit. Navy can be expected to

continue its fight to preserve NATS identity within the structure of MATS by assignment of NATS aircraft and personnel to specific military units as a unit. Navy's argument is that only in this manner can any comparative standard of operational efficiency be maintained and the Navy provided with an air transport nucleus that could be expanded to meet critical wartime needs.

Comparative efficiency of NATS and ATC has been a better basis of contention during merger negotiations. Adm. Kuter pointed out statistics in the Congressional Air Policy Board, showing that for the last six months of 1947 NATS carried 14 percent less traffic than ATC with only one-third of ATC's personnel. ATC uses 10,000 of its 13,000 personnel are employed in regular base personnel and only 3,000 in direct transport operations.

► **Routine Linked-ATC** currently operates 10,400 route miles through its Atlantic and Pacific divisions. Plans are now under way to link the Pacific division at Manila with Dulles, Anshan, and the common frontier of the Atlantic division. NATS operates 40,000 route miles with Shinghai, Manila and Yoko at its Pacific terminals.

NATS recently opened its Atlantic route to Port Lyautey, Morocco and planned a Mediterranean extension in

far as Athens to service that route now in Middle Eastern waters.

Both services have good safety records. NATS completed last year with a passenger fatality and one crew fatality in 495,893,175 passenger miles. ATC had no fatalities in 501,966,133 scheduled passenger miles but killed 14 passengers and 21 crewmen in crashes or uncontrolled flights.

► **Planes Linked**—NATS operates 116 aircraft, principally C-54s and including 4 Martin Mars (JRM) flying boats. Navy crews will continue to operate the Mars fleet under MATS. Future development of large transport flying boats will continue to be the Navy's responsibility. Some top Navy officials believe great flying boats will really new design will play an important role in supply of carrier task forces at sea. ATC operates 180 planes principally C-54s. NATS was scheduled to receive two Lockheed Constellation, double decker transports and a Waco Major powered Mars (JRM) D. ATC's new planes on order include 50 Douglas C-118 (DC-5), the Douglas C-74 and 17 Boeing C-97 Stratofreighters.

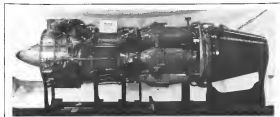
For the last six months of 1947 NATS reported an aircraft utilization of 7 hours per day for C-54s and 9 hours per day for JRM's. Load factors of 55 percent was maintained. No major flights were available from ATC.

Consolidation of the military air transport services is expected to facilitate joint military civil development of new type cargo planes along the lines suggested by Maj. Gen. Hugh Kester elsewhere in this issue. Few if any new missions, the main objective of the transport merger, will be effected by new type cargo planes until after approval of the detailed operational plan which is to be submitted by Kuter and Whitney.

Military Transport Services

	NATS	ATC*
Route miles	10,400	55,400
Passenger miles	495,893,175	501,966,133
Cargo tons miles	44,992,007	72,000,800
Total ton miles	98,779,966	130,246,130
Planes	116	240
Personnel	6,393	21,800

* All statistics for 1947 calendar year



CANADIAN CHINOOK TURBOPROP

A V-100 Canada Ltd. will begin actual tests of the "Chinook," and three turboprop engines shown above, only this type. Designed and built in Canada, the new engine is expected to develop 1500 to 1600 hp at a weight of 1250 lb. It has main thrust of 1000 hp components, six reduction gears and a single stage turbine. It will power a new A. V. Roe jet fighter being designed by the Royal Canadian Air Force and a four-engine jet transport. Production is not scheduled for about two years.

Foreign Airport Program Faces Rough Sledding in Congress

Air Coordinating Committee proposal urges airport rehabilitation to aid international airlines of United States; Brewster scores inadequate facilities.

Air Coordinating Committee's program to secure the development of U. S. international air transport services through construction and operation of a world-wide system of airports and other facilities faces at best an uncertain future in Congress.

Legislation implementing the ACC program, introduced by Rep. Charles W. Whitten, is opposed in the House Interstate and Foreign Commerce Committee and Foreign Commerce Committee by the Senate.

After two days of hearings during which the program was endorsed by ACC, Civil Aeronautics Administration, Weather Bureau, Army Air Force, and with some reservations by Air Transport Association, Whitten argued for a worldwide further action until the Joint Commission Aviation Policy Board is set up to report flying down an overall program in four phases.

► **Brewster Report**—While the Joint Aviation Policy Board blocked action on the overseas aviation facilities bill, the Board's chairman, Sen. Owen Brewster (R., Me.), issued a one-man report depicting the inadequacy of overseas facilities in the Europe Near East area and calling for immediate and concerted ef-

fort to improve them. A report issued by House Interstate and Foreign Commerce Committee last week on Atlantic transportation system urged development of airports and navigation aids in the territory.

In filing his report, Brewster pointed the gap on House Interstate and Foreign Commerce Committee which, for several months, has been studying a report on aviation facilities in the Europe Near East area. Members of the committee made an on-the-spot survey during the summer Congressional session. Brewster later took time out from his duties as a delegate to ICAGO, convening in Geneva, to do the work.

► **Airports Inadequate**—The inadequacy of airports, most of which are without hard-surfaced runways, and the lack of navigation facilities in the Europe Near East area, Brewster's report stated, points "to the necessity of vast expenditures for development during the next few years if air transport is to occupy anything like the significant position which it is rapidly assuming in the United States." Traffic highlighted "the great Transatlantic Airway in Berlin lacks hard-surfaced runways."

► **Commercial services** in Greece are "at the point of being abandoned" because of the "deplorable condition" of the Athens airport.

Although Turkey has invested \$20 million of its U. S. loans for aviation facilities, its main airport at Istanbul still is deficient in navigation and landing aids.

► **Satellite arrangements** for utilization of the Frankfurt Airport at Cairo, the key stopping station of the Near East area, have not been obtained by TWA, although the U. S. considered the port during the war.

Twofold purpose of the aviation facilities bill, drafted by Air Coordinating Committee and introduced by Whitten.

► **To give CAA personnel authority** to contract and equate overseas aviation facilities. CAA is now spending facilities and over to it by the armed services after the war by virtue of Executive Order issued under the War Powers Act, aimed at early evacuation by Congress.

► **To assist expand the U. S. program** of overseas aviation facilities by giving certain limited authority in the U. S. delegate to ICAGO, the CAA and the State Department, working cooperatively to make the best arrangements possible, either through ICAGO or independently, for acquisition, construction, improvement, and operation of overseas facilities.

► **ICAGO Agreement**—The convention establishing ICAGO requires member states to provide air navigation facilities and services required in its territory by international civil aviation "so far as it may find practicable." If member states cannot meet requirements for

facilities and access in their territories—and most of these cases—ICAO is authorized to designate an "agent" to perform required activities on its behalf. The "agent" would be responsible for all construction, maintenance, operation, financing, or other work involved in building facilities and access to the territory concerned up to the international standards.

The Wolsten bull would authorize the CAA to act as an "agent" at ICAO, or directly to undertake international aviation facilities programs—where that was consistent with ICAO policy, CAA would be authorized to raise foreign resources to operate air facilities and to negotiate for the transfer of U.S. developed facilities to foreign governments, if and where practicable.

The ICAO committee provides that international aviation programs under-

taken by the "agent" are to be financed from ICAO funds, through contributions by the states interested in the establishment of the facilities.

► **Congress Is Warned**—Congressmen are wary, however, that the Wolsten bill would result in the U. S. financing it but as infinitesimal amount of a world-wide aviation facilities development program. Rep. Carl Albert (R., Calif.), vice chairman of the Joint Aviation Policy Board, pointed out there would be no restrictions on the U. S. ICAO delegate in conducting CAA to act as an ICAO "agent" and in controlling the U. S. to finance projects. Once the delegate has completed the U. S. bill, he charged, the Congress would be bound to appropriate funds to maintain the good faith of the U. S. Finally, Heston pointed out, CAA, with the approval of the State Department, would have a free hand to conduct the U. S.

in direct negotiations with foreign governments on aviation developments.

Members of Interstate and Foreign Commerce, following hearings on the ACG-drafted bill, were generally antagonistic to the idea of further broadening the U. S. Treaty, which already is laid out to meet requirements for domestic aviation facilities. Conclusion of the Senate report is that international aviation facilities should be developed and financed by the U. S., either directly or indirectly—through economic agreements made with the U. S.

► **Resistor**—Invited direct U. S. financing. Although the Wolsten report dealt only with Europe and the Near East, the same set of factors appears to exist in China and other areas outside the "near eastern" where there are U. S. transport interests. These countries would be able to finance aviation facilities only with U. S. construction loans.

Joint Air Cargo Deal Proposed

Partnership between Air Force and independent air freighters urged by Gen. Kneer.

A working partnership between the Air Force and the independent air freighter operators is proposed by Maj. Gen. Hugh J. Kneer, Air Force Inspector General, who believes that the Air Force should

share the development costs of new all-cargo aircraft with the commercial carrier. Such a partnership, he believes, would "start the snowball on its way" toward lifting the nation's air cargo payload and toward providing the Air Force with a network of cargo aircraft for use in a national emergency.

A major consideration in the analysis is the preservation of the scheduled

airlines for passenger carrying during an emergency, an essential quality that under present circumstances would have to be absorbed by the military due to shortage of transport aircraft by the same airlines. Gen. Kneer sees no reason for Air Force development of passenger carrying transport designed for scheduled airline operation.

► **Air Force View**—Gen. Kneer, generally recognized as one of the Air Force's outstanding military philosophers, believes that a cargo aircraft suitable for both commercial and military use can be developed provided the needs of the commercial user are considered of major importance. There is no reason, he writes, why the design could not contain provisions for special removable non-essential for the cargo loading to accommodate high-density military loads. Provisions for emergency and fire down facilities could also be included to permit modification only for military operations.

He estimates three general cargo transport sizes: • Large with 50,000 lb. payload • Medium with 20,000 lb. payload • Small utility or feeder type of 10,000 lb. payload.

Capacities larger than 50,000 lb. would require special designs suitable only for military operations. These include "pod" designs, detachable for speed in ground handling, tank landing gear, special cold weather operating equipment.

By utilizing these convertible types, Gen. Kneer believes that the non-essential current could quickly generate a cargo aircraft requiring thousands of employees and involving several hundred million dollars. This, in turn, would drop the basic-scale costs down to less than one tenth for a gross handle of four or five billion to tens of billions per year.

Gen. Kneer's proposal appears closely with the recommendations of the President's Air Policy Commission, which proposed the creation of an aircraft development corporation to finance new cargo aircraft by the government.



NAVY TESTS LARGEST RAM JET

Navy carried its new ramjet test jet last week at its facilities, Calif., under test program. Built by Aerojet Engineering Corp. with test system by Aerojet Ramjet Corp. and industrial machine from the Applied Physics Laboratory of Johns Hopkins University, the test jet is driven (left) at its full thrusting speed with ramjet fuel and liquid oxygen. At right, the test jet is being tested under its own power. (Navy photo.)

Navy Boosts Ram Jet Power

Aerojet Engineering Corp.'s 15-in. model shows results of wind tunnel test program.

Navy reveals that the first practical wind tunnel tests of its jet engine have been successfully completed. The engine and flight tests of the most recent Navy model at supersonic speeds has confirmed these research findings.

The new Navy engine, approximately 15 in. diameter and weighing about 150 lb., develops about 2,000 ft. of thrust at 1,500 mph., and is claimed to be the largest ram jet ever flown at supersonic speed. The engine produces about 25 ft. of thrust per pound of weight, a figure 300 percent better than previous test articles, which averaged about 12.5 ft. thrust per lb. weight.

► **Wind Tunnel Tests**—These important advances in efficiency have been

achieved through wind tunnel tests at the Navy's new jet laboratory near Danvers, Texas, operated by General Motors Aerojet Corp. Ram jet combustion research has been delayed by the complexity of operating a ram jet engine within a conventional flow closed type wind tunnel due to the problem of exhaust gases filling the tunnel. The Danvers facility is a converted steel mill, containing two large bays known as Wind Tunnel 1 and Wind Tunnel 2. The former is a converted steel mill, containing two large bays known as Wind Tunnel 1 and Wind Tunnel 2. The former is a converted steel mill, containing two large bays known as Wind Tunnel 1 and Wind Tunnel 2.

The new engine has been test flown at the Naval Ordnance Test Station, Inglewood, Calif., in the Mojave Desert. The engine is authorized to the flight-

old of some report by a large solid fuel rocket motor developed by the Aerojet Engineering Corp., Ann Arbor, Calif. At this point, the test jet engine develops sufficient thrust to sustain itself in flight and the "boost" rocket does away. Experimental ram jets were built for the test by the General Aviation Laboratory. Fuel control systems were developed by Aerojet Aviation Corp.

This latest engine is the most recent in a series developed under "Project Ramjet," which consists of the past efforts of a large number of scientific and industrial research groups. Large and most efficient supersonic ram jet engines are under development in projects for a family of guided missiles, being developed by the Navy Bureau of Ordnance under the administrative supervision of the Applied Physics Laboratory, Henry H. Pratt is in charge of the guided missile research project and Wilbur H. Goss is responsible for the rocket engine research work.

Orville Wright's Death May Return Kitty Hawk Plane to U. S. Museum

Inventor's will expected to resolve fate of plane that made first flight; biplane now in British museum.

By ALEXANDER MURPHY

The first Wright biplane plane, after a 20 year sojourn in England, is expected to be returned to this country soon.

In one of the last interviews before he became ill last fall, Orville Wright, 58, first man to fly and co-inventor of the airplane, told *American* that the plane he planned to bring the Kitty Hawk plane back from the Science Museum at South Kensington, near London, where it had been on exhibit since 1928.

► **Revels**—Revels—Orville Wright, 58, died at the Science Museum, called *American* WEEK last week that the Wright plane was loaned on an indefinite basis and caused no controversy as to disposition in the event of Orville Wright's death. He had not received my request for his return to *American*. He believes disposition of the plane will depend on the Orville Wright will, which has not yet been made public. In the event the original plane is withdrawn a replica built by students of the de Havilland Aeronautical Technical School is virtually completed except for fabric covering, and will be ready to take flight.

Mr. Noel Beck, secretary to Or-



ville Wright, told *American* WEEK that an announcement regarding the disposition of the plane would be forthcoming soon.

► **Died in Sleep**—Orville Wright died at his sleep at Mount Valley Hospital in Dayton, Jan. 30 at 10:40 p.m., 16 years after the death of his brother Wilbur, who died in 1917. Wright had suffered two heart attacks, one in October and

a second in January a few days before his death. Miss Beck had found him unconscious in his office after the second attack and he was taken promptly to the hospital. Death was attributed to a long congestion and the heart attack. He was buried in Dayton's Woodland Cemetery beside his body at burial.

In an odd coincidence, the last survivor of the three Coast Guardsmen who aided the Wrights in their historic flight, died at Norfolk (Va.) Hospital Jan. 21; the day after Orville Wright's death. He was Capt. John T. Dearth, 74, of Mantoloking, N. C., who had held down one of the wings of the first plane before it was made for its first flight.

► **Last Interview**—It was a warm September evening in Kitty Hawk, Wright had returned the writer to his building home in Glendale, North Carolina. The home of an electrician was a background scene for his conversation and after a brief while, he told Wright I would use a penholder of cork balsa. A small white lamp whose base was a jangling ether stethoscope, with his copy for the stethoscope, sat on a table. It was one of countless evening conversations and historic topics of early conversations, which took the Wright home as filled.

► **Wright Took Plane**—He had declined to attend an aviation dinner that night. He regarded his rare appearance at public functions as an obligation, but he considered only when absolutely necessary. The old back injury which he had suffered in the 1908 crash of the first airplane, in which Lt. Thomas Selfridge was killed, was giving him some pain.

Specialist in the design of aircraft engines, Raymond Banta W. With, chief engineer to engineer Raymond W. Whitham who is in a long running feud with him. With came to Chrysler in 1934, and left it in 1935 to go to Ford as a design engineer in the engine division and advanced in several other positions at the plant being chief of engineering for the engine division prior to his latest advancement. With has been at Chrysler for 14 years and has been appointed engineering consultant. He will direct engine design work under the supervision of Mr. F. E. Feltz, chief of the engine department. With will also provide Chrysler engineering departments and will also direct the operation of the Whitham and Tappan offices in South Bend, Ind. The Whitham office is located at 1111 E. 12th St. and is owned by Whitham. With will also work in 1938.

Further Summaries Given Of IAS Session Papers

Additional summaries of symposium analyses presented at the 16th annual meeting of the Institute of Aeronautical Sciences held recently in N. Y. appear below. This is the second and final installment of the summaries; others appeared in the Feb. 2 issue.

[illegible]

W. Schiller, *Winds of America's Eastern Coast*, by F. P. McPherson, *Atlantic Oceanographic and Meteorological Service*, issued 1933 follows in their observations were based on preponderant in terms that recommended states of weather history is discussed as by, various types of coastal winds, and the danger from coastal winds of accumulation of debris from storms is pointing to the winds is grouped upon in (including those which may have random probability of occurrence) as well as result in damage to life and property, and the damage to life and property and hydraulic, damaging or harmful wind motion may also occur. It is believed that hurricanes along coastal areas will continue to be a major hazard and that the United States Government should be advised in many ways.

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ed. It was stated that noise reduction in the premodular factory determining the fully assembled in all build events.

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Abstract of the *Acronyctus* Section was
Acronyctus Chamaeleon of Volynskaya
 River by B. Baidin, Irkutsk Research
 No. Institute of Zoology, which itself
 is a very interesting study and with some
 assistance of two specialists rendered by the
 present paper of such interest to the wing
 and the base to the end of the tail wing
 and the base where they are the leading
 and the leading edge. The system of which
 are the leading edge and the base of the
 wing. Both study and lower surface
 is covered in a patterned so that the wing
 has the general shape of a flat end
 of a wing with sharp leading and trailing
 edges. From the data obtained in a number
 of cases, the author concludes that the
 relation between the thickness of the wing
 and the shape of the leading edge is

Abstracts of the Proceedings of the Symposium on the Role of the State in Economic Development, University of California, Berkeley, 1964 The Symposium on the Role of the State in Economic Development, held at the University of California, Berkeley, in 1964, was a landmark event in the history of development economics. It was the first time that a group of leading economists from different countries met to discuss the role of the state in economic development. The Symposium was organized by the University of California, Berkeley, and the World Bank. The Symposium was held in the University of California, Berkeley, from September 15 to 19, 1964. The Symposium was attended by 100 participants from 15 different countries. The Symposium was organized into four sessions. The first session was devoted to the role of the state in economic development. The second session was devoted to the role of the state in economic development. The third session was devoted to the role of the state in economic development. The fourth session was devoted to the role of the state in economic development. The Symposium was a landmark event in the history of development economics. It was the first time that a group of leading economists from different countries met to discuss the role of the state in economic development. The Symposium was organized by the University of California, Berkeley, and the World Bank. The Symposium was held in the University of California, Berkeley, from September 15 to 19, 1964. The Symposium was attended by 100 participants from 15 different countries. The Symposium was organized into four sessions. The first session was devoted to the role of the state in economic development. The second session was devoted to the role of the state in economic development. The third session was devoted to the role of the state in economic development. The fourth session was devoted to the role of the state in economic development.

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It was found that the Wilson method was the most accurate and satisfactory for the least number of steps and that the Wilson method gives the best accuracy for all computations required in computing stress. Since the Wilson method appeared most efficient for use where the large number of steps must be included, it was used to predict the approximate stress level for a wide range of wing thicknesses.

References
1. *Structural Approximations*, Martin, H. C. "The Summary Report of Special Committee on Wing Stress," Report No. 2, NACA, 1940.
2. *Wing Stresses*, NACA, 1940.
3. *Summary Report of Special Committee on Wing Stress*, NACA, 1940.

More Jobs Available

More Jobs Available For Aero Engineers

Nine leading aircraft manufacturing companies expressed the opinion that they will be in the market for aeronautical engineers graduating from colleges in 1948, according to results of a recent poll by the undergraduate publication at Rensselaer Polytechnic Institute, Troy, N. Y.

In answer to the question "Will positions in your company be available for mechanical engineers graduating in 1987?" Bell, Boeing, Chance Vought, Goodrich, Grumman, Lockheed, Viscum, Northrop and Republic answered "yes." Negative answers were received from Kellogg, Kollsman, Piper and Texas Engineering. Average salary posted by affirmative answering companies was \$23.95 per month, ranging

Consumers perceived discounts responding to the survey, other in detail the fields where were open. All consumers stated that race will be required reciprocity for work in aerodynamics, structures and stress analysis, design and drafting. Also listed were ergonomics in flight testing, weights,

Cee Bee Announces Executive Appointments

Expansion of One Day Chemical Co., an Angeleno, to create a national market for its aqueous cleaning solvents has

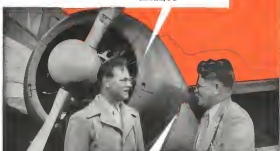
Stephen Andrus, former Lockheed research engineer, has been appointed vice president.

Each possessing a background of extensive aviation experience, Tom Merck and G. E. Genson have been appointed respectively managers of East Coast and Southern States Co. divisions. Merck, at one time vice production manager for Bell Aircraft, formerly held key assignments with the Canadian Air Lines, Canadian Pacific, and Austin Marine Service Co.

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why it is important that they be properly selected and applied.

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Heavily loaded gears, shafts, pinions etc. and carburized parts used in oil well drilling industry.	4025, 4820	U-S-S SuperKore B
Gears, shafts, pinions, etc.	4217, 4320	U-S-S SuperKore C

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UNITED STATES STEEL



Typical installation of stall warning indicators. At left is bracket-mounted Anold device; at right is Side Flight's panel-mounted unit.

Stall-Warning Indicators Refined

Two Devices now on market feature aerodynamic means of sensing stall, and claim reliability under all flight conditions.

BY ALBERT E. SMYSER, Jr.

Complimentary installation of stall warning devices on all private planes has been recommended by the Committee of Aviation Psychology of the National Aeronautics Council, after receiving a report on stall recognition studies conducted by the Educational Research Corp. at Bedford Field, Bedford, Mass., Canadian Airport, Norfolk, Texas, and the Westchester County Airport, New York.

Basically, the stall warning indicator is not a new development; it has been known, in various forms, for years.

An early form consisted of a piece of string attached to the lip of the airfoil at the trailing edge of the wing, so that its normal level angle it remained out horizontally, but when the craft approached a stall, the string would drop and flap erratically. Obviously this was too rough an indication for precise going, but at the time it

was considered a great help to the pilot. Further developments in this field brought many varied inventions.

One of the more recent inventions, operating on the principle that attitude of plane was chief source of stalls, employed a rotary switch which indicated the warning when the nose of the plane was raised beyond the recommended climb angle (from level flight). Drawbacks of this type device were immediately apparent: the warning went off in turbulent air, and failed to go off on steep turns, and it operated continuously on the ground and during normal landings.

Latest devices have taken cognizance of the fact that not only attitude, but speed and lift are determining factors of the stalling speed of a plane.

At the present time there are two warning indicators on the market, which have been proved, through use, to be adequately reliable for use on private aircraft. These are the Anold Air-

plane Stall Warning Indicator, manufactured by Garlowsky Products Co., and the Side Flight Stall Warning Indicator, made by Side Flight Instrument Corp.

The Anold device is best described as a velocity sensing instrument, the "basis" of which is the detector. This, by virtue of its location on the wing, detects the breakdown of airflow which occurs over the wing prior to stall.

When there is normal laminar airflow across wing, the boundary layer of the wing surface is very thin and the detector is exposed to high velocity airflow. As the angle of attack increases to the point where the airflow can no longer follow the airfoil contour, the boundary layer begins to thicken and the streamlines start to break away from the wing surface.

As turbulence sets in at the trailing edge of the wing the detector is enveloped by a region of slow moving, turbulent air which, because of eddies,



Anold's stall warning units are located on wing upper surface near trailing edge in area of turbulence which heralds stall conditions.



At left is stall-warning unit and microswitch of Safe Flight wing stall indicator. The unit initiates signal for cockpit indication. Indicator (right) is transducer device which indicates wing light at center surrounded by a series of aerodynamic holes.



When wing is open, vanes are held down by the springs and spring tension. Only when the airplane is in a critical condition goes the wing stall warning system into the "on" position. This feature eliminates the undesirable characteristic of having the horn blowing at all speeds below stalling speed—the speed at which the "on" position below stalling speed. Thus on takeoff or during landing, the warning operates only for a moment or two as the plane passes through the critical speed range, automatically indicating that instrument is operative.

The instrument has been designed so that it cannot be shut off. A special model, however, for training planes, now has a doorbell type switch in stalled which would permit the instructor to be cut out for as long as the switch was held down.

Wing vanes are designed to operate satisfactorily under any kind of operating condition, but the greatest model is not designed to operate under wing conditions. Since positive pilots rarely fly in wing conditions and almost universally slide in the classroom, some risk of landing or descending below wing level, the added expense of an electronically heated unit, while it could be easily installed is not considered worthwhile.

Cockpit installation consists of a transparent fuselage case which can be mounted in a standard 2 1/2 in. hole in the center of the instrument in the left light. The lens, which carries a built-in lens, is an integral part of the instrument.

Indicator is designed to operate on the 12-volt electrical system used in almost all modern personal aircraft. Should the installation be made on a

plane having no electrical system, two 6-volt dry cell batteries used in series will provide power for over an hour's operation. System is protected by a 10-amp fuse.

Actual installation (considered by CAA as a minor modification requiring only appropriate log entries) may be made by one A & E mechanic. Templates provided with each unit permit accurate placement of the unit in relation to the leading edge. Sometimes the unit is mounted about 1/2 inch of the wing, out on the wing—or at least far enough out to avoid the propeller slip stream. The case protrudes downward at an angle of 34 deg with the chord line.



Safe Flight stall warning unit as it appears installed on wing leading edge.

Recommended setting calls for the indicator to operate at a speed 5 mph higher than normal stalling speed. Adjustment is accomplished simply by sliding the wing unit up to increase the warning margin or down to decrease it. Once the instrument has been flight tested to operate at the proper margin in level flight, it will operate with the same percentage of warning in steep turn or unusual attitudes.

Installation weight of the Safe Flight indicator is and is to be 11 lb. (the all plastic) and weighs in place on the fact that only one wing unit is required since the unit's sensitivity depends on direction of airflow rather than pressure.

A special installation designed for the Cessna Laser (140) is available. The case on the unit used on light aircraft, with operation in wing conditions, is an indication that the wing is protected. It is cleared that the two, not all cases with as the large plane is accurately as it does on the small personal ships.

Safe Flight claims that the Beech C-44 has agreed to install these devices on production models in the near future. This is considered an indication of the industry's acceptance of the value of stall warning indicators and their added attraction to private pilots and operators. It is further believed that it will lead to similar installations on planes manufactured by other lightplane companies.

Recommendation of the Committee and favorable reports from pilots who have flown planes equipped with warning units should go far towards pointing out the advantage of having such safety devices installed on required equipment in all types of aircraft.

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possible continuous high operating efficiencies over a wide range of altitudes and temperatures. Yours are being conducted which indicate these pumps can be operated at a maximum pressure of 2000 psi.

Pump Model	Capacity (g.p.m. at 1200 r.p.m.)	Rate Pressure	Size & Port A-B SAE	Ports	Weight
SP 750-A	1	1500	30001	1/2"-14	4.3 lbs.
BP 750-B	1	1500	30000	1/2"-14	3.3 lbs.
SP 750-A	2	1500	10003	1/2"-12	6.5 lbs.
BP 750-A	2	1500	10001	1/2"-12	6.1 lbs.
BP 750-A	5	1500	10001	1/2"-12	10.9 lbs.

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field by subjects. It is really a combination of both types of cataloging knowledge. The divisions and sections comprise a classification system but here again they depart from library practice which requires that classification system evolve systematically from the theoretical to the practical and open several phases of a given field. Unlike older systems, the S.A.I. is a browsing schedule. Its unique functional breakdown saves the reader of both divisions and sections.

A further advantage is a rapidly changing field assigned by documentation is its extreme flexibility. Since there is no logical order in the average count of the classification breakdowns new divisions, sections and even subject headings may be added or subtracted without disturbing the simple numerical identification used. A recent example was the addition of an entire new division to the 47 fielded late last year. The new division is Marine Design—No. 48. Previously it was felt that this subject could be covered as a section under Construction, General—Division No. 33. Increasing volume of documentation in nuclear physics and its future influence in the aviation industry prompted the division.

Section headings for 13 severely studied divisions have been finalized to date. The list of these groups is contained in the accompanying section breakdown for Index Divisions. Only coverings at Wright Field are making in the creation of subject headings for all divisions and sections of the Index and these lists will be mounted out from other sources.

Because of the flexible nature of the Index it may also be said, while it is being compiled, is the A.D.D. documents that program which is divided into two major parts on the basis of the recently classification of the aviation involved. The distribution of security classified material comes under the Air Technical Index, that of unclassified abstracts under the Technical Data Digest.

The classified documents are screened, processed, abstracted, indexed and microfilmed within 48 hours after receipt at Wright Field. These come from the field meeting call and their abstracts are distributed on transmittals. Each of these A.I.I. sheets contains an abstract following in a single column of a division of the S.A.I. Recipients as well libraries or individuals with limited facilities may file them in ordinary ring binders. Larger libraries, colleges and schools, Technical Institutes receiving their reproduction standard set catalog cards from the transmittals and file them under the indexed division and section numbers. When sending of the abstract indicates need for the entire document, its serialism may be

SECTION BREAKDOWNS FOR INDEX DIVISIONS

(1) United States	(2) Materials	(3) Power Plants, Jet and Turbine
1 Guidance and Control	1 Ceramics	1 Jet and Turbine
2 Electronics	2 Fibers	2 Jet Engines
3 Structures	3 Rubber, Synthetic and	3 Jet Engines
4 Structures, S.A.I.	4 Adhesives and Sealants	4 Jet Engines
5 Structures and Power	5 Composites and	5 Jet Engines
6 General Handling	6 Composites and	6 Jet Engines
7 Aircraft Components	7 Composites and	7 Jet Engines
8 Aircraft Components	8 Composites and	8 Jet Engines
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covered by assigning the A.I.I. number in the upper right hand corner of each abstract. Qualified recipients may obtain the microfilm from this procedure via the high cost to the government of having data returned to Wright Field.

To assign the present and proprietary rights of contractors, a special category of "Technical Distribution" has been set up. Although military contractors work is usually considered public property, it is recognized that there were cases where it would be harmful to the source to disseminate certain reports. A category was therefore assigned based on distribution for a specific report from its contracting agency. If this request is granted, the A.I.I. abstract of the report will be confined to non-confidential or non-proprietary reports reflected in that particular phase.

Abstracts of non-classified technical papers and articles appearing in magazines and other publications are included twice monthly in the A.D.D. addition and the Technical Data Digest. To provide up to the minute information for recipients assignments have been made with many publishers and professional societies to provide, per publication abstracts of articles before they appear. Then the abstracts in the

Technical Data Digest refer to articles appearing simultaneously with the Digest. These abstracts are printed on one side of the page for clipping and filing and are numbered and grouped according to the pertinent divisions of the S.A.I.

These two programs provide qualified recipients with a complete, fast distribution of all current material pertaining to their specialized sub-division of the field of aviation and greatly simplify the task of filing and finding what is needed. Together with the second other service they will save a considerable amount of \$75,000,000 annually in engineering time. This time, saving may be priceless in the intense technical research which is now going on.

The program was developed under the leadership of Colonel H. M. McCoy, Chief, Intelligence T-2 and Deputy Commanding General, Air Materiel Command, Lt. Colonel Albert A. Armitage, former commanding industrial equipment and the Chief of the Air Documents Division, General W. H. H. Nelson, formerly of the Oil Tech Faculty and now Technical Consultant, A.D.D., and Captain N. A. Dunn, Chief, Technical Data Division, Bureau of Aeronautics.

Wing Spoiler Proves Its Worth In Searching Development Tests

Tunnel research supplemented by flight testing reveals potentialities of this control system device. Military applications are detailed and refinements outlined.

Dr. ROBERT McLAUREN

The increasing wing loading of aircraft (up to 100 lb per sq. ft.), particularly high performance military types, has placed a premium on satisfactory landing and takeoff characteristics which are most easily attained by the use of high-lift flaps.

The increment in lift coefficient afforded by a given flap design is a function of its area, and since its chord does not vary, beyond 0.20-0.30 of the wing chord it follows that an increase in slotted flap area can only come through increasing its span.

Obviously, the most satisfactory solution is the full open flag, but that creates the need for some means of providing lateral control for the airplane, since it circumvents the conventional aileron. Finding a solution has involved a complex research and development program extending over the past 13 yr, and still in progress.

* **Spoiler Research**—The idea of a "spoiler," a flat or curved surface whose motion spread into the airstream to "spoil" the lift of one wing panel and thereby cause it to slow and drop, causing the desired roll and bank, was investigated as early as 1932 at the National Advisory Committee for Aeronautics.

of the *W* factor, who later created the Isotest Ecopipe, and Joseph A. Shortell examined the spider as a means of providing lateral control at high lift coefficients when conventional silicone control lines such as its effectiveness (An angle of attack of about 10 deg at the membrane at which conventional silicons provide adequate lateral control, most conventional aerial sections develop their maximum lift at 12.15 deg). Their investigation of a spider mounted 0.20 chord from the leading edge revealed an adverse yawing effect at low specific deflections, which was in direct proportion to the spider loss of lateral deflection at high lift coefficients.

• **Flight Test Investigations**—This wood tunnel research was supplemented by flight tests on various spoiler systems, and by 1934 the basic problem of the spoiler had been closely identified and

solution proposed." These eight tests revealed a serious lag between the movement of the controls by pilot and response of the airplane in roll. Although that lag was only 1 sec, it provided unsatisfactory control. Wick suggested a combination spoiler and conventional aileron system as the solution to this problem, a method which found wide favor and still in use today.

Further flight tests the following year on various configurations revealed that a lag of 1/10 sec. was not noticeable by pilot, thus establishing that lag time as a basic design criterion. These tests also revealed that not only did the use of speakers effectively reduce control forces but that all control "feel" disappeared at low spoiler deflections. This lack of control force eliminates the desired "self-centering" requirements for a lateral control system and makes lateral control by speakers alone impractical, at least with present designs.

Concurrently with these spoiler tests, research on the "let up" system was being conducted and it was not until 1977-78 that analysis of a wide variety of forms of both types revealed the spoiler design superior because of its favorable yawing moment throughout the greater portion of the flight range, its small adverse yawing moment at high lift coefficients with flaps extended,² its superior rolling moment and low control inertia.³ That research cleared the way for concentration on the spoiler to the exclusion of low resistance devices.

► **Special Applications**—First production airplane to incorporate spoiler panels for lateral control was the Northrop P-61 Black Widow night fighter, design of which was started in the fall of 1940 and the first airplane being delivered in July, 1943. A total of 706 P-61 fighters was delivered, the lastly built two years later in all the major war theaters, and is still in use with the Air Force. The Fairchild aircraft company produced com-

spoiler panel is located at 0.72 chord and extending from 0.49 to 0.83 of the air span.¹ A conventional slat extends from 0.83 to 0.96 of the air span and has a 0.17 wing chord. Each

flight tests of this system revealed several spoiler vibrations, which were eliminated by sealing the slot gap. Test pilots also reported a decided loss of lateral control effectiveness with flaps extended and this was corrected by sealing the outboard flap slot.

Following correction of these two deficiencies, the F-6 proved highly successful and pilots who have flown it are enthusiastic about its unconventional control system, which displayed light control forces, favorable yawing moments, reasonably good control at the stall, and increasingly good control with wing flap extensions.

A second experiment employing spider lateral control in the Hughes XF-17 aircraft, which extensive wind tunnel research was carried out.¹ In the course of these investigations it was clearly revealed that spiler thickens, air gap size, and level angle of the spiler upper thickens greatly affect the hinge moment characteristics.

These studies indicate that a five-spoke wheel in combination with a fairly large rear gap is the optimum configuration, although care must be taken in the determination of this gap width since it can create up to 12 percent in-

These tests also revealed enough similarities between spider and conventional silicon designs as regards quasi-static rolling moment effectiveness to warrant the use of standard silicon design data in the preliminary design of spiders, greatly simplifying the research and design problem.²

compared with silence, is evident from the greatly reduced wing twisting moments caused by spoiler deflections, according to research results.¹ This phenomenon is created by negative pressure coefficients existing behind the extended spoiler, which reduce positive pressure moment tendencies and actively create negative twisting moments near the tip, as a result, least twisting moments may be obtained by locating the spoiler panel at near the wingtip as preferable.

• A promising characteristic of spoiler control is that its effectiveness increases with speed, the reverse of conventional airbrake controls.¹⁰ Tests also reveal spoiler effectiveness in inverted flight, permitting prolonged maneuvers in the stratosphere. Spoilers have also shown promise as both lateral and directional control means for sharply swept back wing platforms.¹¹

- An improved type of spoiler is now available, which consists of a plate mounted at right angles to the spoiler panel to provide a seal for the otherwise not airtight when extended and to prevent



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FINANCIAL

Disappointing Airline Earnings To Show in 1947 Annual Reports

Continental, Eastern and Western only three likely to reflect profit when scores are in; National's position analyzed on basis of December, 1947, financial report.

Airline annual reports soon will appear in final form and spell out in detail the disappointing earnings results for 1947. It is probable that only three of the major carriers will be able to report a net profit for last year. These companies are Eastern, Western and Continental.

Eastern most likely will be the only carrier to show earnings as a direct result of its operations without any benefit of special adjustments in the usual rate or from the sale of property. Despite a particularly difficult winter that witnessed the cancellation of Con vacations and a decline in the normally highly profitable winter traffic, Eastern during 1947 is reported to have maintained its unbroken earnings record, established since the inception of the company.

Preliminary reports indicate that Western may have faired 1947 with a small profit. This showing, however, is primarily due to the profit achieved on the sale of Route No. 68, Denver to Los Angeles, to United Air Lines.

Continental First—Continental Air Lines is the first to release final results for last year, on its standard basis, and shows a netted income or profit for 1947 over 1946. The company reported a net income of \$116,421 equal to 43 cents a share on the 271,856 shares of common at its cost of one major service base listed below. This compares to \$27.95 per share in 1946, or 15 cents per share. Passenger revenue declined from \$3,718,740 for 1946 to \$1,005,426. The company recently announced a very favorable adjustment in its sale of mail compensation from the Civil Aeronautics Board, which is primarily responsible for the improved financial showing.

It is interesting to observe that Continental was one of the few carriers accepting a CAB said rate (one cent) order without a protest. The new rate order was established on an executive basis with a sliding scale adjustment for increases in the passenger load factor. This was the pattern first followed for

Pioneer and also recently adopted by independent Colonial for operations in its route to Bermuda.

National's financial statement for December, 1947, making possible an analysis of the full year's results. The company's final year ends June 30, hence current report cannot be regarded as if it were the company's annual statement.

For the year ended Dec. 31, 1947, National reported a net operating loss of \$1,161,569. This compared with the net operating profit of \$994,479 shown for 1946. However, carryover tax credits and other items reduced the company's net loss to \$868,932 for 1947. The carrier has an application for increased rates pending before the CAB which it filed during 1947. If successful in its plea, restrictive and pay, effective to the date of filing the application with CAB, may substantially reduce if not completely eliminate last year's deficit.

Accounting Changed—A number of factors call attention to some interesting aspects of the company's operations. As a result of CAB instructions, National, during the year ended June 30, 1946, changed its method of accounting for passenger revenues from the previous practice of listing such revenue into income on the basis of tickets sold to the procedure of listing such revenue as income on the basis of transportation actually furnished. In the company's federal income tax returns for the year ended June 30, 1946 to 1947, passenger revenue was reported on this revised basis.

Another agency of the U.S. government, the Bureau of Internal Revenue, however, proposed additional taxes for the years 1944 and 1945, disallowing the change in basis of reporting passenger revenues in income—a change indicated at the insistence of the CAB, another arm of the U.S. government. Subsequently on July 31, 1947, the Tax Court of the United States upheld the Bureau of Internal Revenue and

National's tax status. In a letter dated Oct. 15, 1947, the company was advised that in view of additional information (furnished to the Treasury Department offices), the Bureau concluded that passenger revenue reported on the basis of transportation furnished conforms with Treasury regulations and clearly reflects income and therefore granted the company permission to re-post passenger revenue on this basis beginning with the year ended June 30, 1946, provided the company would pay and all rights of action with respect to the differences for the two years previously referred to.

Agencies Accord—As other words, the two agencies of the government are now agreed as to this tax treatment. Further, the Treasury Department has in effect announced that such it was wrong in counting on these additional tax payments for 1944 and 1945 but would prefer to forget about the entire matter. National will ultimately reap some benefits in tax relief through carryover tax credits. Due to anticipated operating losses for the fiscal year ending June 30, 1948, the company will be entitled to carryover the full amount of the 1947 tax and the entire 1946 tax, all of which have already been paid.

Enlightened Attitude—National probably is the only one of the most enlightened attitudes among the airlines in the issuance of financial statements. The company usually is first in the industry in reporting monthly results. Of greater significance, however, is the fact that it has been making available to all having legitimate interest in its affairs a copy of its detailed monthly statement immediately following its completion. This has been a commendable practice whether operating more on the black or on the red. This is recognition of the public interest engaged by the carrier as well as a pro attitude which leads to confidence in its affairs.

The air transport industry, in continuing need of additional capital funds, on the whole has been very backward in fostering sound stockholder relation ships. For example, it is not too difficult for stockholders when a company has given itself up to serving its investing better stockholder associations, yet has been most ready in the manner in which operating results have been released to those interested.

—Self Attached

Airport Legal Battles Point To Future Handling Problems

Whiteman Airpark and Chamberlain Airport cases set precedents in nuisance complaints against fixed base operations.

Two case histories of close-airports and their legal battles against neighborhood complaints of airport noise provide a useful background in public relations and legal procedure for all airport operators who may encounter similar problems.

• **Whiteman Airport, Pasadena, Los Angeles** was subjected to a legal state court proceeding by 165 citizens living in the neighborhood.

• **Chamberlain Airport, in the Fairview residential section of Akron, Ohio**, was the site to build its \$10 million airport by a North Ohio district Court of Appeals decision against complaining nearby residents.

Plaintiffs in the Whiteman case were concerned with a noise of one mile of the field, who brought suit against Andy DeVore, master pilot, owner, Dick Pyper, and the Devore Property Corp., operator of a flight school on the airport and asked general

damages of \$1,000,000 for the following alleged acts of nuisance:

- Aircraft noise
- Fear of injury from falling aircraft.
- Dust stirred up by planes
- Damage to houses from vibrations of low flying aircraft.
- Damage to children and inhibit production from low flying aircraft (complaint alleged the adults were "frightened")
- Damage from objects and oil falling from aircraft.

Complaint and that planes from Whiteman Airport flew within 30 ft or less of plaintiffs' homes creating noise and vibrations which caused the houses to shake and many frightened children so that they flew against the walls of their homes; therefore, attorneys, advised with plaintiffs' conversations, prevented plaintiffs from sleeping and caused them to become nervous and ill. Following filing of the statement proceedings the airport management sought

to notify the neighbors by aircraft endorsement of a CAA approved traffic pattern and banning of any type of planes that the neighbors requested. Motion pictures showing low flying aircraft, and the alleged light of objects and other livestock were prepared by the plaintiffs.

• **Plaintiff's Cause-A** systematic canvassing of the 165 plaintiffs, using a court stenographer to take depositions from them, was then started by the management, a task which lasted nearly two months with depositions from approximately half of the group. A list of private investigations and three full-time airport employees were used in preparing the depositions.

The depositions reflected that the only solid adverse witnesses were members of the grievance committee which originated the petition, but that a large number of these witnesses had signed the petition to be "unlawfully" but could not be sworn to the airport, or admitted that the new traffic pattern and procedure had reduced their objections. Approximately 75 percent of persons interviewed were favorable witnesses for the airport.

• **Agreement Reached**—After filing the depositions, the Airport management was in a position to obtain agreement from the plaintiffs on a stipulated judgment. This suits the defendant to prevent traffic pattern, reporting violations of the petition bearing signature of C-47 and larger airplanes from the field. This last restriction is meaningless since the airport can, does not permit sale operation of this type plane.

Raymond B. Ruse, attorney for the

Whiteman Airport, insists plaintiffs lost that a proper public relations job at the time the airport was opened would have eliminated much of the difficulty. If the neighborhood residents had known that a visit pattern was being enforced and that visitors were being kept by a local court, the early finger there would have been little reason for the formation of the grievance committee and the filing of the statement passed suit.

The Chamberlain Airport ruling set aside a previous injunction granted by Common Pleas Court, to prevent construction and operation of the airport.

• **Damages Declined**—Design of the Common Pleas Court decision to require generally was the fact that it would have limited future airport construction to consist of airport sites containing 16 square miles of land. In other words, the court ruled that an airport to avoid being deemed as a nuisance must be large enough so that planes may it would be able to enter or leave the field at not less than 500 ft minimum altitude over adjacent property. St. CAA measures distance of a 10 in 1 mile angle were followed, the field would require a minimum area of 16 square miles.

There are few airports in the U. S., if any, which would qualify under such a ruling.

The reversal of the higher court pointed out that the Federal government has placed available air space in the public domain and not subject to private ownership and control. It pointed out the CAA ruling that available air space was defined as 500 ft above non-encroached areas and 1,000 ft above congested areas except when necessary for takeoff or landing.

"We must accept that establishment of an airport of the level contemplated in great concern to the public and if such an airport is located or its establishment prevented, the consequences will not only be of injury to the owner, but may be a serious loss of a valuable asset to the community. Undoubtedly the plaintiffs will experience some discomfort but that a case of the incidents or results of living in a heavily populated, highly automated state.

Stephens College Award

The 1947 aviation educational award was presented to Stephens College for Women, Columbia, Mo., by Shuman Devore, Consolidated Vultee Aircraft Corp., in recognition of the college's pioneering work in aviation education for women. Presentation was made by William H. Kleiss, Jr., Shuman general sales manager, to Kenneth Newland, aviation department and academic advisor (head). A total of 6,000,000 in aid has been given by Stephens Col-



CESSNA CASTERING GEAR

First photo of Cessna 340 equipped with the new Gyroflex castering wheel for cross wind landings. Cessna is reported to have optional factory certified equipment at \$140 added cost, plus wheel loading.

lest student pilots without a serious accident, and the Stephens flight program over its 10 years, is credited with training one-twelfth of all the women now engaged in commercial aviation.

Pricetag of \$4,795 For Aerona Sedan

Lowest 1948 four-place plane price yet—\$4,795 firm, was announced last week for the new Aerona Sedan, by Aerona Aircraft Corp., Middleburg, Ohio, which promised delivery beginning in March.

Plane has an all-metal wing and single wing strut, white landing and tail surfaces are fabric-covered steel tubing. It is designed for takeoffs and landings fully loaded on the same short fields that the two-place Aerona has, although a stall speed of 51 mph, somewhat faster than the two-place's stall speed is quoted. Rate of climb is given as 650 ft./min. with gross load. Stalled cruising speed of 105 mph, and optimum altitude cruising speed of 117 mph, are quoted, with 40 gals. fuel capacity, stated to be sufficient for well over four hours cruising. Aerona Sedan has 37 ft. 6 in. wingspan, 25 ft. 3 in. forelegs, and is 7 ft. high. Engine is the new Continental 145 hp powerplant. Kicks down 37 in. wide provides access to cabin from a "buggy step"

Pilot's seat is adjustable, front seats fold and rear seats are removable to provide cargo compartment. Cabin is soundproofed and insulated with heating for both front and rear seats.

Gross weight is listed at 2350 lb. with 900 lb. useful load. Plane has a 120 B. h.p. engine.

Standard equipment at list price includes two-landing lights, four glide path and two mounted in left wing leading edge, electric starter, 12 volt engine driven generator with battery, hydraulic toe brake, glove compartment, engine indicator, parking brake, air pump, and standard full-sized wheel. A radio receiver transmitter will be installed at the factory as an optional extra.

Bonanza Price Hike

Increase in the price of the Beech Bonanza has caused personal plane to \$8,445 firm, was announced last week, a \$300 rise from the former list price. Officials said the price increase barely covered increases which had been made by its suppliers in costs of materials and components, and expressed the hope that no additional increase in the Bonanza price would be necessary in 1948.



ADMA OFFICERS AND DIRECTORS

Officers and directors of the Aviation Distributors and Manufacturers Association are shown following the recent meeting at Dallas. Left to right: R. W. H. Donald Richards, ADMA secretary; Walter B. Hawkins, Air Force, Inc.; Richard N. Roebig, ADMA vice president; Kenneth C. Carr, R. B. Kory, ADMA president; Air Associates, Inc.; G. B. Van Dusen, ADMA vice president; Van Dusen Aircraft Supplies, Inc.; A. M.

Rock, Goodyear Tire & Rubber Co.; Jack, second row, W. B. Matthews, Western Aero Supply Corp.; James Rolden, National Aircraft Sales Corp.; E. M. N. Scott, Scott Aviation Corp.; Lawrence Zogman, General Aircraft Supply Corp.; R. D. Hicks, Continental Motors Corp.; Charles E. Jones, and Ray Seyler, both of Super Aircraft Corp. Headquarters for the distribution and manufacturing group is in Philadelphia.

Air France to Open All-Freight Services

Company to concentrate on more frequent service over present lines.

PARIS—Air France operations during 1947 ran up a deficit of about \$8 million, on a total business which brought in approximately \$56 million, according to preliminary calculations furnished by the company.

For 1948, freight haulage will be pushed, with the opening of several new all-freight services and more space allotted to freight on passenger planes. In the passenger field, which accounts for 74.6 percent of 1947 revenues, not so many new lines will be established this year, national more frequent service will be offered on current routes.

By analysis of the company's European lines should be equipped with four-engine planes, the new French 12-passenger Longuepointe equipped with P & W engines. Services of these are already in service, not only on the French North Africa route but also into Iran, 23 on Paris-London and Paris-Cairo. Twenty-five more should be delivered by June, replacing DC-3's, which in turn can supply 100 to an Lockheed 50. Five to 10 749 Constellation are also ordered for the North Atlantic service, and in DC-4's.

► **Slightly to Meet Loss**—Air France's operating losses do not take account of the loss on the French-Waterloo line established in the fall of 1947, which has been given a \$380,000 government subsidy, nor losses on the Singapore-Charter flights and other minor Indian lines. Most of the loss shown will be met by a \$6,793,000 government subsidy until next year.

Company officials explain the loss as due chiefly to delay in delivery of new equipment, overvalued use of the unsuitable TUSA, and wage increases. ► **Receipts Increased**—They point out that Air France, like the BOAC, is forced in a part of the government's export policy to operate a number of long-range unprofitable lines. Unplanned length of these routes has increased, for example from 25,000 miles in 1938, to 60,000 miles in 1946, to 87,000 miles today. Nevertheless the percentage of receipts to costs has increased from 46 percent in 1938, to 75 percent in 1946, to 87 percent in 1947.

There is little hope, however, that



MELBOURNE PROPOSES TRANS-PACIFIC TERMINAL

Melbourne's bid to become the terminal airport for trans-Pacific flights has the backing of Australia's Department of Civil Aviation, which is working on a four-stage program to make a model field of Essendon Airport, Melbourne. The main money in the double runway system of four parallel runways will be 7,000 ft long. The airport office is located in a 1,000-ft-long building, with a 1,000-ft-long runway and a 1,000-ft-long taxiway at the base of the U. When completed, the airport will be able to handle 100 aircraft movements a day, three times the present volume.

deficit operation can be ended in 1948. Passenger miles increased to about 138,000,000 in 1947 from 218,000,000 in 1946, and ton miles (in metric tons) of freight and mail to about 10,000,000 from 5,700,000. Freight costs declined from 55 percent of the total to 35 percent.

Future Charted For Hindustan Aircraft

Bangalore plant assumes varied role under government control.

BANGALORE—Hindustan Aircraft Ltd., which started as a supplier of aircraft components, served through the war as Southeast Asia's key maintenance base, and did important work in equipping India's merchant air fleet, has at last had its immediate future charted by the Indian government which controls both its finances and its policies.

The new role is a multi-purpose one for the time being, with stress on eventual assumption of full aircraft production. But when output attains some 100 percent efficiency, slowly pushing after the war to the limit, the present one is full industrialism—even going so far as the development and construction of indigenous plants.

Officials have a back seat at present. Besides continuing overhaul and conversion work for Indian airlines, workers are now assembling 15 Percival trainers

from major components for the RAF by a December deadline. Following that another five are to be assembled from detailed parts, and then work is to begin on manufacture of everything, but engines and instruments with 15 indigenous craft due by June 1949.

► **Costs Contained**—Major item on the plant's books is a contract to construct 10 midway coaches along aircraft principles at a cost of \$140,000. Railway rolling stock, a sort of India's most primitive road right now, and Hindustan Aircraft is working on new designs with further contacts expected. Other manufacturing work includes helicopter trolleys for Mysore State power transmission lines and manufacturing steel doors and windows for the Mysore government, which owns a major interest in the company.

At present the personal strength is 163, of whom 80 are British and only seven American. For a long time the wartime period when about everything, down to the chewing gum on the floor, was almost pure American in origin and machinery.

ICAO Statistics Division Resumes Reports

MONTREAL—Summaries of statistical reports received important consideration by the statistics division of the International Civil Aviation Commission in their recent session at Montreal. The reports lay out some data during the war.

IATA Traffic Conferences Discuss Problems at Cairo

Traffic Conference No. 2 of the International Air Transport Association will meet concurrently with other similar IATA groups at a joint meeting of international airline operators at Cairo this week.

Main session of Conference No. 2, which also will discuss common schedules and improvements by the IATA Air Code, will consider changes in regional arrangements to fit the world-wide one and half points, conditions of service and agreements established by October's first joint meeting of the three IATA conferences at Rio de Janeiro.

Starting Feb. 10, the sessions of the three conferences are expected to continue for a week with that of No. 2, comprising Europe, Africa and the Middle East, the principal meeting.

The conference also will meet jointly with each of the other two No. 1 conferences, the Western Hemisphere, including Canada and the Hawaiian Islands, No. 3, Am. Australia and the islands of the Pacific. The joint meetings probably will concern and resolve situations as rates and other rates may be before the reports, on which existing resolutions apply this summer.

De Havilland Drover Makes Initial Flight

SYDNEY—The three-engine Drover light transport, first aircraft wholly designed and built by the Australian De Havilland Co., recently made its first flight in Sydney, New South Wales.

Cable described the 20-in. flight, which included all normal maneuvers, as "most satisfactory." Structure weight was reported slightly below estimate, indicating a possible success in production.

Powered by 340 hp. Gipsy Major engines, the metal monocoque new model will seat six passengers and carry a payload over half a ton at about 175 mph. for a cruise range of about 500 miles.

The Drover was designed to replace Dugan biplanes of 1931 design built for war training and used since for commercial work in country districts. For first flights of the new plane appeared in Australia West Dec. 22.

GCA at Liverpool

LONDON—Speke Airport, Liverpool, will have GCA equipment, becoming the first airport in this country so equipped. Orders for London Airport and Frankfurt (Germany) similar equipment is to be installed at Northolt, Belfast and Birmingham, at two months intervals, at that order.

Shanghai Letter:

Airlines Show Upward Trend

SHANGHAI—As 1947 closed, commercial airlines in China gained its greatest year of crisis. The year opened bleakly in the wake of dark Christmas Day crashes. Three more airlines crashes followed rapidly, raising the two-month toll of air deaths above the 170 mark.

Events, however, and a partial passenger boom, demonstrated, it seemed that the airline was going down on a gloomy, dramatic argument of aviation history.

Instead, civil aviation in China has been in a great storm. Today, it is the heaviest activity in all the troubled land.

Credit for keeping China flying belongs largely to three men: Bill Boyd, American, flying Boeing biplanes China National Aviation Corp. (CNAC), Moses Chai, CNAC-trained founder of Central Air Transport Corp. (CATC), and Li Gel 'Tao An-shun, young first commander of China's new airlines.

CNAC, which had five of the seven, was in a real slump when Boyd was sent back to China last September. He started flying alone immediately. There have been many changes in personnel during the year so that the line is now almost down to the operating efficiency and stability for which it had been long known.

CATC had leader leading them CNAC. Equipment was, especially as passenger ships, in a bad condition. Chai has kept his operation on the line and claims most cargo and passenger business for the year. Last's share of the credit belongs to Commissioner Tai. Despite shortages of personnel, funds and equipment, he has an emergency of Chinese politics, he started making some system and regulation to commercial air operations.

As outstanding achievement was the installation of night landing equipment at Luoyang. Lack of this equipment frequently caused an international air service for re-transport a plane arriving at Tokyo from the U. S. after 1 p.m., and was forced to land in Shanghai because it would arrive after midnight. Consequently it would have to lay over until 2 a.m.

Passenger handling by the airlines also shows definite improvement.

Processing of tickets, baggage, customs and police clearance is far superior to last year when getting into the waiting area at the small terminals was a headache. Also, there is a fair chance of getting aboard a slightly pushed-up plane. Baggage is not as plentiful but is far more frequent than before.

CATC will take delivery of an American next year. In addition, it has purchased six DC-4's from Northwest Airlines and a conversion of one of its C-46's and C-47's. When conversion is completed the last will begin to give CNAC some real competition for passenger business. Prior to last June, Mao Gao had not actually given other passengers.

► **Statement**—CNRA Air Transport (Central Government) announced an aggressive move during the latter part of 1947. However, it is not true to use the figures for one person with CNAC as CATC.

CATC operated on a really different basis from the two government operations. It did not have to maintain strict routes and schedules. While the other lines were having difficulties operating at all, CATC was able to keep things in line with United Nations Relief and Rehabilitation Administration, immediately to government relief aid.

Furthermore, CATC has maintained friendly with Generalissimo Chiang Kai-shek has made it his difficult to obtain dollar foreign exchange from the Central Bank of China. Whether it will help China will obtain a permanent franchise for its airline services to be seen.

The Ministry of Communications and CATC and CNAC, both government, seemed to get on very well for a third year. It is not that China can't use more transportation, but it is a question whether China can afford more than the two airlines now permanently financed.

CNAC still runs on a doctrine of new aircraft. For China operations, it must fly the C-46, the best aircraft designed. Consequently it will not withdraw any new planes in the hope that an upgrade with newer aircraft will be developed.

PCA Bolstered by New Routes In Boston-New Orleans Decision

CAB gives carrier much-coveted southwest extensions to New Orleans, Mobile and Atlanta; recent economies brighten financial outlook.

By CHARLES ADAMS

Working nifty after undergoing its second major expansion in four months, Capital Airline, PCA, is getting plans for early deliveries of two newly acquired southwest extensions into a network which now includes more than 5,000 miles.

PCA's decision in the long pending case found PCA the main beneficiary. The board awarded the carrier a semi-converted 340-mile link from Birmingham, Ala., to New Orleans via Mobile, and a second extension from Bristol, Tenn. via Atlanta, Ga., via Asheville, N. C.

► **Bids Denied**—In designating PCA for the new routes, CAB rejected the applications of American, Galtair & Southern, Colonial, Delta, National and Northwest for relevant new services in the Boston-New Orleans route. Eastern Air Lines vigorously opposed all of the applications, asserting that relevant traffic would be diverted from its existing Boston-New Orleans route.

While denying Delta's bid for a New York-New Orleans operation, CAB granted the carrier a 170-mile extension from Memphis, Miss., to New Orleans via Hattiesburg, Miss.

► **The Prosperous Impasse**—CAB's latest award to PCA coincided with additional evidence that the carrier is pulling out of the financial straits which beset it a year ago. The company announced last week that its cash balance on Dec. 31 was \$1,472,000—the highest level since October, 1946.

Reflecting razor economy savings, PCA cut its expenses during the last quarter of 1947 to \$5,158,000, compared to \$5,754,000 in the same 1946 period. Revenue increased from \$4,456,000 during the final quarter of 1946 to \$5,102,000 in the last three months of this year.

► **Lower Cap-Net**—PCA for the last quarter of 1947—about \$190,000—will be in sharp contrast to the \$1,817,000 deficit suffered in the comparable three months of 1946.

Most observers feel that the new southwest extensions will be a far pricier asset to PCA than the Baltimore-Town Center link granted last Sept. 30. PCA president H. H. Cavanaugh said the most recent additions will eventually strengthen the pattern of its expanded eastern operation.

► **The Economic Situation**—Bairns had estimated that it may lose 34 percent of its Boston New Orleans traffic to the new PCA operations. PCA, which flew about 250,000 passengers and cargo in 1947, expects to generate \$2,000,000 additional passenger miles annually over existing portions of its system because of the new links.



CONVAIR DELIVERY FLIGHT

First NC44000 Convair plane is to be delivered to a customer shortly after arrival at American Airlines' training center at Tusculum, Ga., after a flight from San Diego, Calif. Pictured left to right are American and Convair personnel including the flight instructor O. W. Harper, Convair service representative, A. Anderson and M. E. Williams, American ground maintenance instructor, G. E. Hays, American's Convair instructor, General Duffell, AA instructor Fred W. Van Housel, Convair's Valdez, L. M. Berne, American engineering pilot, Pilot Officer W. A. Niles, American, Captain Oliver Brick, AA acceptance pilot; K. A. Cudde, American communications representative; C. E. Bailey, AA mechanic; and Richard Thomas, American engineering representative.

CAB denied allegations that PCA will be unable to perform the newly-authorized service because of recent financial difficulties. The board pointed out that the carrier will have to submit its only first-class extension of Atlanta, Mobile and New Orleans and added that little if any new flight equipment will be required.

► **Better Airlines**—New Orleans and Atlanta—the two largest cities in the deep South—will give PCA access and authority for its routes, CAB declared.

PCA already has service from Chicago up the Atlanta and New Orleans options. Immigration of service is expected in the early spring.

New Jet Transport

First Convair-built and designed commercial jet transport will be ready for test flights by February 6, March 1949, according to A. V. K. Renc, East, Toronto. Convair's design of prototype is now well under way. Work on production models of the aircraft for sale is expected to start in 1948.

The C-112 jet transport is a new aircraft class designed specifically designed primarily for intermediate-sized service with stops. It is not designed for trans-Atlantic service and could not be used for inter-Atlantic over-water service, American Wings was told. Aircraft will cost \$6 to \$80,000, and will be powered with four Pratt & Whitney engines each developing 1500 to 1800 hp.

California Accident Stirs New Probes

The question arose surrounding the safety standards of uncertificated passenger-carrying airlines has again been spotlighted following the crash of a chartered plane on the West Coast and new developments affecting East Coast operations.

Thirty-two persons were killed when a DC-3—whom CAA said was operated by Airline Transport Carriers, Inc., Burbank, Calif.—crashed near Coalinga, Calif. Twenty-eight Mexican deportees, a United States Immigration Service Guard, and a crew of three men aboard the plane.

► **Flight Canceled**—While there was no information that the carrier had violated safety regulations, investigations were immediate. Immigration service canceled at least one other similar charter flight, thus preventing the possibility that that particular type because may be lost in uncertificated operations in the future.

Representative Charles A. Walcott (R., N. J.) demanded a thorough investigation of the accident, which was probably the worst domestic charter plane accident to date. The Air Transport Association who launched a probe to determine if the California crash was part of the same pattern of low safety standards which has marred its certificated operations on the East Coast.

► **Mass Incident**—Shortly after the Coalinga accident, it was reported that two Pacific Racers were stranded at Miami when their domestic charter aircraft from New York to San Juan, was grounded by CAA on 19 separate counts. After boarding a second chartered plane, they were reportedly forced down in Bahamas Islands by engine trouble.

Meanwhile, CAB was holding a hearing in Philadelphia on the Coastal Air Lines accident near Savannah, Ga., early in January (Aeronautics Wings, Jan. 19). One CAA investigator testified at the hearing that there was evidence that Coastal's operation was "dodgy." Previously CAA reported that Coastal had been cited for violating regulations on three occasions.

British South American Airways Gets Permit

British South American Airways has been issued a foreign air carrier permit to operate between Jamaica, British West Indies, and Miami, Fla., via Nassau, Bahamas Islands, and Bermuda. The company intends to make three weekly flights weekly between Jamaica and Miami, each flight via Nassau.



POWER ON THE GROUND

The mobile powerplant designed by United Air Lines is one of the first being placed in service by the carrier. Capable of generating 1,800 amps, the four-cylinder, 180-hp engine is equipped with two powerplants. The powerplants are mounted on the vehicle and extend about 30 ft. The powerplants are manufactured by Motor Generator Corp., Troy, Ohio.

BSA currently flies from London to points in the Caribbean, South America, Bermuda and the West Coast of Africa. In addition it has a local service between Caribbean points and the Northern part of South America. The carrier owns 15 aircraft, of which ten are 747 passenger Aero Yachts, three are 17-passenger Lancasters, and two are 17-passenger Tudor IV's. Aero Yachts will be used on the Jamaica-Nassau-Miami route.

The Air Transport Association, associated with the Air Force's position, plans to take the matter up with the government's Air Coordinating Committee, which includes representatives of the State, Commerce and Post Office Departments, the Army and Navy. CAB and the Bureau of the Budget. ACAA notes that the Air Force is underlining the certified airlines by dealing with "safe-air" uncertificated carriers. Immigration of BSA's application is planned by the Joint Congressional Aviation Policy Board.

Airlines to Share Military Traffic

The loose package of military air traffic or contract carriers should be given military business involving mass air transportation of civilian personnel to overseas points has been pushed at least tentatively by Secretary of the Air Force W. Stuart Symington.

Decision on the basic issue was deferred upon the Air Force at a result of the Air Transport Association's insistence that Northern Airlines and Pan American Airlines carry all of the 2000 to 3000 military personnel involved in the movement from the West Coast to Tokyo (Osaka, Manila and Guam) (Aeronautics Wings, Jan. 26). The Air Force had proposed dividing the traffic among the two certificated lines and

two large uncertificated operators—Pan American Airlines and Transavia Air Lines—both of which have excellent safety records.

Symington decided that the certificated airlines should be given as many of the 2000 passengers in this, on a basis of their regularly scheduled flights without putting in extra sections. The remainder of the business will be contracted for among uncertificated carriers.

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Case Reopened

With Member Jack Lee dissenting, CAB has agreed to reconsider that part of its Middle Atlantic route decision of Sept. 30, 1947, which denied Eastern Air Lines' application to add Pittsburgh as an intermediate point on its Detroit-Miami route.

TRANSPORT 45

Caribbean-Atlantic Gets Sliding Scale Mail Pay

For the fourth time in seven months the Civil Aeronautics Board has established an airline mail rate geared to the rise and fall in the carrier's passenger load factor.

Lowest company to receive sliding scale mail payments is Caribbean-Atlantic Airlines, San Juan, P. R. The formula was first applied to Panair de Azores last July, to Continental Air Lines in December and to Colombia's Bermuda

route in January (ENR 1/24/68, p. 25).

Operating within Puerto Rico and to the Virgin Islands, Caribbean-Atlantic will receive \$145,646—equal to 53.93 cents a plane mile—for the 13-month period ended Oct. 31, 1967. After Nov. 1, 1967, the carrier will get 44 cents a plane mile when its monthly passenger load factor is 90 percent.

For each one percent rise in load factor above 90 percent, the rate will decrease 13 cents a plane mile down to a maximum of 31 cents a mile. When the load factor is under 90 percent, the

maximum rate will be 64 cents a plane mile will apply. At a 50 percent load factor, the carrier can earn an estimated 6 percent profit on its investment, while with a 70 percent load factor it can earn 21 percent profit despite the lower rate of mail pay.

CAB criticized Caribbean-Atlantic for having too many employees and asked to recognize the excess personnel for mail rate-making purposes. The Board also refused to recognize the carrier's third DC-7 for mail-making purposes, stating that two planes were sufficient for the company's operations. As a result of the sliding scale dispute, the \$145,646 submitted for the 13-month period ended Oct. 31, 1967, will not wipe out the carrier's \$357,450 operating loss.

Mid-Continent Edges Into Black in 1947

Despite a \$149,971 deficit during December, Mid-Continent Airlines finished 1947 with an unqualified net profit of \$426,696 after taxes (12 cents a share on outstanding stock) compared with a \$263,666 profit in 1946.

The 1947 figures do not include mail revenue for the 13-month operation of the Tulsa line. In fact, since CAB has not yet set a rate for this line, CAB operating revenue for the year totaled a round \$5,671,825—14 percent above the 1946 level. Operating expenses increased 37 percent.

NACA carried 389,186 revenue passengers (\$1,568,436 passenger miles) in 1947, against 289,625 passengers and 73,770,543 passenger miles in 1946. Revenue and factors dropped from about 72 percent in 1946 to 62 percent last year. Revenue under taxes increased nearly 25 percent to 6,584,338, while mail, expense and freight loss ratios rose from 339,900 to 498,190.

Terminal Theater Ready At Willow Run Airport

First unit in a proposed radio-television air terminal theater has been inaugurated at Willow Run Airport, by Airlines Terminal Theater, Inc., Detroit.

Following research and selected short subjects, the theater also has a video intercom system using a small screen showing the motion picture screen. By this means, all disputes, information regarding flight arrivals and departures and individual calls are handled on the screen as soon as they are received by the loudspeaker within the terminal track.

Entrance to the Willow Run airport theater is directly off the terminal building area and is convenient to airline ticket counters, loading gates and telephone. Theater capacity is under 200.

SHORTLINES

► **Alaska Central Airlines**—Temporary flight ops on and after Sept. 21, 1947, has been fixed by CAB at 45 cents a plane mile.

► **American**—During 1946 expects to boost its start mile capacity 15 percent by changing out its entire passenger fleet to jet and Convair-type planes.

► **British South American Airways**—Has received CAB permission to serve Miami through Miami International Airport starting this month.

► **Boeing**—Has let contracts totaling \$280,000 for materials to be used in its \$1,000,000 line maintenance building to be erected this year at Miami International Airport.

► **Northwest**—Plans to start service into Washington, D. C. within a few weeks. A new traffic office at 1730 H St. is to be completed sometime next month.

► **Pan American**—Has added a third weekly Conquestair flight to Calcutta, India.

► **Piedmont Airlines**—CAB has denied Shore Airlines' petition that the effective date of Piedmont's fueler certificate be shifted pending court review of the legality of the Board's award (Aerobase Week, Feb. 2). With flight scheduled to start this month, CAB granted Piedmont permission to suspend service temporarily because of airport dues.

► **Trans-Canada**—Expected to inaugurate shortly two flight links between Montreal and Vancouver with pressurized DC-64B aircraft. Steps on the express run will be made at Toronto, Winnipeg and Calgary.

► **TWA**—Estimates that a one percentage point variation in fuel factor during 1948 will result in a difference in revenue of \$708,000 domestically and \$780,000 on the company's international system.

► **Western**—Has consolidated loading, maintenance, passenger handling and other facilities at Salt Lake City with those of Monarch Air Lines. The two contract will continue to have separate maintenance, traffic and sales departments, however.

► **Wisconsin Central**—CAB has authorized temporary suspension of service at 21 of WCA's 34 month points because of inadequate airports. The order is to begin operations this month.

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The Genius of the Wright Brothers

(Alexander McSweeney, associate editor of AVIATION WEEK, is a former Dayton newspaperman. He was a friend of Orville Wright, and contributed the tribute to Orville and his brother, Wilbur.)

A large portion of the world has never fully recognized the full scope of the inventive genius of the Wright brothers. This has been due partly to the way, retaining nature of Orville and Wilbur Wright, and to the fact that their scientific background was acquired through basic study of available aeronautical knowledge, coupled with laboratory and flight experimentation, instead of through articulation at a college or university.

Even after the recent death of Orville Wright, some editorialists hurriedly written, and obtained quickly pulled out of the old newspaper morgue envelopes, too frequently gave the impression that the Wrights were a lucky pair of bicycle mechanics to succeed in flight, when other more educated men had failed before them.

Actually the Wrights were the best aeronautical engineers of their time. The first Wright power plant itself is the best proof that the Wrights had progressed well beyond the calculations of their contemporaries, and had substantiated their ideas after finding that much so-called scientific fact of their period was in error.

Their first two gliders which were flown at Kitty Hawk, N. C., in 1900 and 1901 used wing designs based on the air pressure tables prepared by the German inventors, Lilienthal, and accepted as correct by Dr. Saundby P. Langley.

Performance of these gliders was so erratic that the Wrights nearly gave up the whole idea of trying to fly. But as the winter of 1901-1902 the Wrights built their own wind tunnel, probably the first in the world, in which they tested wings, varied wing sections and developed their own governing tables. In the fall of 1902 they returned to Kitty Hawk with a glider designed according to their own calculations, and flew it in nearly 1,000 flights, some covering distances of over 600 ft. Some of these flights were made against a 36 mile wind, which gave proof the efficacy of their new wing-warping system for lateral stability and control.

The first successful power plane which first Orville and then Wilbur flew on Dec. 17, 1903, at Kitty Hawk, was a logical next step after the 1902 glider flights.

Now for the Wrights were ahead of their U. S. contemporaries is shown by the fact that they had virtually no competition in the U. S. Army Signal Corps contract awarded for a military plane, as late as 1908-1909.

The original plan of the Wrights was the basis of lengthy patent litigation finally adjudicated in their favor after many attempts by Glenn Curtiss, Albert Zahm and others to break down their claims. Curtiss and Zahm finally used a modified version of the old Langley Aero-

plane in 1914 as an effort to prove that it had been capable of flight before the Wrights had flown. But Orville Wright compared the modified plane with the original Langley plane as described in the Langley museum, and found a list of some 35 changes which had been made. Most important were three fundamental changes in the wings in center, in leading edge shape and in increased aspect ratio, as well as strengthening the wings by reinforcing and trussing not used by Langley.

Years later the Smithsonian Institution publicly accepted the changes described by Orville Wright and admitted earlier statements about the 1914 flights. At the same time, the Smithsonian expressed regret "that the Institution employed to make the tests of 1914 an agent who had been an unsuccessful defendant in patent litigation brought against him by the Wrights."

After the death of Wilbur Wright in 1912, his brother Orville continued making important aeronautical engineering contributions, including an automatic stabilizer, the first split-type flap, and a highly efficient engine cooling which associated by several years after more published coverings. He participated in development of the first American guided missile, a gyro-guided flying bomb of World War I, built by the Dayton Wright Company.

He was an active member of the National Advisory Committee for Aeronautics from 1915 on, and his death prevented his receiving the President's Medal of Merit which was to have been presented to him in Dayton by General Carl Spaatz, Air Force chief of staff, for his services in World War II in NACA and on the National Industrial Council.

In the last few years there were indications that Orville Wright had asked for the eventual return of the first power plane from the South Kensington Museum in England, where he had sent it on loan in 1928 in protest against the Smithsonian Institution's statements about the Langley Aeroplane. At that time it was understood that the plane would remain in England permanently unless released as Orville Wright's life time.

If it is returned, it should without question be given "the highest place of honor" in the Smithsonian Institution recently pledged. But if it remains in England, it can carry out the predictions made by Orville Wright: "In a foreign museum, this machine will be a constant reminder of the success of its being there and after the people and poets, politicians of this day are gone, the business of the future may examine impartially the evidence and make history record with it."

—ALEXANDER MCSWEENEY



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